Ankle Foot Orthoses in Prevention and Treatment of Heel Pressure Ulcers: A Physical Therapy Perspective

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Clarian Health, Methodist Hospital-Physical Therapy Wound Management, Indianapolis, Indiana
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#### Background

In 2007, the Institute for Healthcare Improvement (IHI) initiated the 5 Million Lives Campaign to prevent pressure ulcers. As a result, physical therapists must take accountability for the identification of patients at risk for developing pressure related injury. Currently, there is a multitude of ankle foot orthoses (AFO’s) designed to help prevent pressure to the heel. Not all AFO’s are safe and effective for the ambulatory patient at risk for skin breakdown.

#### Purpose

The purpose of this case report is to determine the safety and effectiveness of heel pressure relieving ankle foot orthoses. Specifically, we selected 5 AFO’s using HCPCS code L4396: Ankle Contracture Boot by DeRoyal, FootHold With Splint by EHOB, MPO 2000 Active by RCAI, Multi Podus by RCAI, and PRAFO by Anatomical Concepts. The following characteristics were assessed: (1) the ability of the product to suspend the heel in order to prevent and treat pressure related heel ulcers, (2) the ability of the product to avoid skin breakdown at the Achilles tendon or other vulnerable areas as the result of improper fit, (3) the ability of the product to allow optimum functional ability in weight bearing, (4) the ease of application of the product, and (5) cost effectiveness.

#### Case Descriptors

<table>
<thead>
<tr>
<th>Overall Ranking - Highest to Lowest (Total Number of Points)</th>
<th>Ability of the product to suspend the heel in order to prevent and treat pressure related heel ulcers</th>
<th>Ability of the product to avoid risk of skin breakdown at the Achilles Tendon or other vulnerable areas as a result of improper fit</th>
<th>Ability of the product to allow optimum functional ability in weight bearing</th>
<th>Ease of application of the product</th>
<th>Cost effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>FootHold with Splint, by EHOB (23)</td>
<td>5</td>
<td>5</td>
<td>3</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Ankle Contracture Boot, by DeRoyal (14)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>MPO 2000 Active, by RCAI (14)</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Multi Podus System, by RCAI (13)</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>PRAFO, by Anatomical Concepts (11)</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>1</td>
</tr>
</tbody>
</table>

Special thanks to Advanced OrthoPro, Inc. (Indianapolis, IN) for the use of their products for this study.

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#### Outcomes

The FootHold With Splint by EHOB was rated the highest in categories 1, 2, 3, and 5. The Ankle Contracture Boot, by DeRoyal was rated the highest in category 4. Our results indicate that the FootHold With Splint by EHOB is the most overall safe and effective heel pressure relieving AFO based on the 5 characteristics important in a patient at high risk for skin breakdown.

#### Discussion

Although there are many options available for heel pressure relieving ankle foot orthoses, the physical therapist must assess the characteristics of each product to determine the safety and effectiveness specific to preventing pressure related injury to the heel, while maximizing function. Based on the data collected in this case study, not all heel pressure relieving AFO’s are equally safe and effective. Clinical reasoning and sound judgment must be used to determine the AFO most appropriate for the patient at risk for skin breakdown.